UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/758,699 | 01/14/2004 | Antonio Di Franco | 2110-63-3 | 4971 |

996 7590 05/02/2005

GRAYBEAL, JACKSON, HALEY LLP
155 - 108TH AVENUE NE
SUITE 350
BELLEVUE, WA 98004-5901

| EXAMINER | |
|---|---|
| PHAM, LONG | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2814 | |

DATE MAILED: 05/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/758,699 | DI FRANCO ET AL. | |
| | Examiner | Art Unit | |
| | Long Pham | 2814 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) *7-21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6 and 22-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *14 January 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election without traverse of claims 1-6 and 22-28 in the reply filed on 03/21/05 is acknowledged.

### *Drawings*

1. Figures 1-15 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

3. Claims 1, 2, 3, 4, 5, 6, and 22-26 are rejected under 35 U.S.C. 102(a) as being anticipated by the applicant's admitted prior art (AAPA) of this application.

With respect to claim 1, AAPA teaches a DMOS device comprising (see figs. 1-15 and associated text of this application):

a body 2 of semiconductor material of a first conductivity type (N) and a first doping level, said body having a surface;

a field region 3, of insulating material, extending along said surface and separating, in said body, at least one first active area 7 and one second active area 6;

a first conductive region 26 with said first conductivity type and a second doping level higher than said first doping level, formed in said first active area;

a body region 15 with a second conductivity (P), formed in said second active area;

a second conductive region 19 with said first conductivity type, formed in said body region;

at least one body-contact region 31, with said second conductivity type, formed inside said second conductive region and extending from said surface as far as said body region;

an insulating layer 35, extending on top of said surface and having a plurality of contact openings 38; and

a plurality of contacts of conductive material, extending in said contact openings as far as said first conductive region, said second conductive region and said body-contact region.

The limitation "characterized in that said body-contact region is self-aligned to a respective contact" appears to have a processing limitation component and a structural limitation component. AAPA teaches the structural limitation component of body-contact region 31 aligned to the contact 37c. The processing limitation component is not given weight in the patentability determination of present device claim.

With respect to claim 2, AAPA teaches the conductive region comprises at least one first implanted region 19, having a third doping level (N-) lower than said second doping level (N+), and a second implanted regions 27, having a fourth doping level (N) higher than said third doping level (N-), said

first implanted region comprising a peripheral portion contiguous to said implanted region at least one side facing said first conductive region and a traverse portion extending from said peripheral portion, physically separating and electrically connecting said second implanted regions, said traverse portion accommodating said body-contact region. See figs. 1-15 and associated text of this application.

With respect to claim 3, a third active area 7 separated form said second active area by area field region, a third conductive region 26, formed in said third active area and having said first conductivity type (N) and said second doping level (N+),a gate region 11, extending peripherally in part on top of said second active area and in part on top of said field region and having an internal peripheral edge, and a spacing region 24, extending on top of said surface along said internal peripheral edge of said gate region, wherein said peripheral portion of said first implanted region comprises two longitudinal portions extending underneath said spacing region, and said traverse portion extends between said longitudinal portions of said peripheral portion. See figs. 1-15 and associated text of this application.

With respect to claim 4, AAPA further teaches that the body-contact region 31 has a greater depth than the second conductive region 19. See fig. 12.

With respect to claim 5, AAPA further teaches that the first conductive region is a drain region and the second conductive region is a source region. See figs. 1-15 and associated text of this application.

With respect to claim 6, AAPA further teaches that the first conductivity type is N and the second conductivity type is P. See figs. 1-15 and associated text of this application.

With respect to claim 22, AAPA teaches a DMOS device comprising (see figs. 1-15 and associated text of this application):

a drain region;

a gate region 11;

a source body region 15;

a first conductive region 27 in the body region;

a plurality of contacts 38 of conductive material; and

a body-contact region 31 in the first conductive region.

The limitation "the body-contact region being self-aligned with a respective one of the contacts" appears to have a processing limitation component and a structural limitation component. AAPA teaches the structural limitation component of body-contact region 31 aligned to the contact 37c. The processing limitation component is not given weight in the patentability determination of present device claim.

With respect to claim 23, AAPA further teaches a substrate 2 of semiconductor material having a first conductivity type (N) and having a surface, a field oxide region 3 extending along the surface between the body region and the drain region, and a second conductive region 26 formed in the drain region. See figs. 1-15 and associated text of this application.

With respect to claim 24, AAPA further teaches the first conductive region comprises a source region.

With respect to claims 25 and 26, AAPA further teaches the substrate 4, drain region 26, and the first conductive region 27 have the first conductivity type (N) and wherein the body region 15 and body-contact region 31 have the second conductivity type (P). See figs. 1-15 and associated text of this application.

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be

patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 27-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over the applicant's admitted prior art (AAPA) of this application.

With respect to claims 27 and 28, AAPA teaches a DMOS device comprising (see figs. 1-15 and associated text of this application):

a drain region;

a gate region 11;

a source body region 15;

a first conductive region 27 in the body region;

a plurality of contacts 38 of conductive material; and

a body-contact region 31 in the first conductive region.

The limitation "the body-contact region being self-aligned with a respective one of the contacts" appears to have a processing limitation component and a structural limitation component. AAPA teaches the structural limitation component of body-contact region 31 aligned to the contact 37c. The processing limitation component is not given weight in the patentability determination of present device claim.

AAPA fails to teach the DMOS device is a part of a communication system. However, the use of DMOS device in a communication system is well-known.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Long Pham whose telephone number is 571-272-1714. The examiner can normally be reached on M-F, 7:30AM-3:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Long Pham
Primary Examiner
Art Unit 2814

LP